

AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph [0029] beginning at page 7, with the following rewritten paragraph:

-- [0029] Figure 1 is a partially cut-away perspective view of a light detector device configured in accordance with one embodiment of the present invention. As can be seen, this example light detector device is configured with multiple layers of semiconductor materials designed for detecting light at two different wavelengths, λ_1 and λ_2 . In particular, the device includes two layers 20 and 40 of detector semiconductor material, each with a different light absorption spectrum. Layer 40 detects λ_1 and layer 20 detects λ_2 . In addition, note the contact layers 10, 30 and 50 of semiconductor material, which are electrically coupled to the backside contacts 11, 31, and 51 respectively, by metalized conductor strips. The backside connections are provided for applying detector bias and individual detector current readouts which are electrically coupled via bumps to the ROIC substrate (not shown). A reflective coating 62 can be provided on the side of the detector layers to provide a photon-in-a-box effect, to contain light within the detection area as explained herein. --

Please replace the paragraph [0036] beginning at page 8, with the following rewritten paragraph:

-- [0036] Figure 2 is a cross-section view of the device shown in Figure 1, and illustrates the contact layers 10, 30, and 50, and light detection layers 20 and 40. Also illustrated is a light-coupling grating 60 and interconnect bumps ~~41~~15, ~~31~~35, ~~51~~55 used to electrically and mechanically couple the QWIP structure to a read out integrated circuit (ROIC) substrate 70. The three interconnect bumps ~~41~~15, ~~31~~35, ~~51~~55 in this particular case couple the contacts for each of the detector layers 20 and 40, as well as the contact for the detector common. These bumps ~~41~~15, ~~31~~35, ~~51~~55 can be implemented, for example, with In or an Indium-compound. Note that the QWIP structure is shown as inverted after the hybridization process, where the QWIP structure is electrically and mechanically coupled with the ROIC substrate 70. --

Please replace the paragraph [0037] beginning at page 9, with the following rewritten paragraph:

-- [0037] In operation, a detector bias voltage (V_{DB}) can be applied to one or both backside contacts 11 and 51 with reference to backside contact 31. For simplicity, note that the backside contacts 11, 31, 51 are electrically coupled to corresponding ~~to~~ bumps ~~1115, 3135, and 5155~~ are referred to herein as contacts 11, 31, and 51. Application of a detector bias voltage produces an electrical bias across the corresponding detector layers 20 and 40. In static or non-tunable configurations, formed using symmetric quantum wells, changes in the bias applied to each contact do not cause changes in the spectral response. In tunable configurations, formed using inter-sub band material systems and asymmetric quantum wells, this bias applied to each contact can be different, and changes in the bias cause spectral shifts. --